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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/660,818	09/12/2003	Brent McKay	0270101	7046

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EXAMINER
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HOLTON, STEVEN E

ART UNIT	PAPER NUMBER
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2629

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/21/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/660,818

Applicant(s)

MCKAY, BRENT

Examiner

Steven E. Holton

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 November 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 and 21-62 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-17 is/are allowed.
- 6) ☒ Claim(s) 18, 19, 21-23, 25-29, 35-37, 39-43, 49-51 and 53-57 is/are rejected.
- 7) ☒ Claim(s) 24, 30-34, 38, 44-48, 52 and 58-62 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. This Office Action is made in response to applicant's amendment filed on 11/28/2006. Claims 1-19 and 21-62 are currently pending in the application. An action follows below:

#### ***Claim Objections***

2. Claims 25, 26, 34, 39, 40, 48, 53, and 54 are objected to because of the following informalities:

All of the claims use the phrase "the displaying the conditioning input..." within the claim language. The Examiner feels that the phrase should be "the displaying of the conditioning input...". Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 25, 26, 39, 40, 53, and 54 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The Examiner notes that claims 25, 39, and 53 are similar to one another, and claims 26, 40, and 54 are similar to one another.

Regarding claims 25, 39, and 53, the claims recite “the first secondary value for the first pixel and the secondary period of time are calculated such that an average value of the first pixel after the displaying [of] the conditioning input is approximately equal to...” The Examiner notes that a pixel is visual area of a display that is controlled by data values transmitted to the display device. A pixel does not have an inherent value that is saved within the pixel. The ‘value’ of the pixel is the voltage/current applied to the pixel electrodes when being driven. Further, as taught in the abstract “an average value of the pixel for the primary and secondary periods of time is approximately equal to one-half of the bit depth of the pixel.” The specification does not teach that the primary and secondary values cause the average value of the pixel after the time periods to be equal to one-half the bit depth. The value of the pixel after the primary and secondary periods will be based on the data values transmitted to the pixel during the time after the primary and secondary time periods. The specific teachings of this claim is new matter based on there is no discussion within the specification about the primary and secondary burn values affecting the average value of a pixel after the primary and secondary periods.

Regarding claims 26, 40, and 54, the claims recite “wherein the second secondary value for the second pixel is calculated such that an average value of the second pixel after the displaying [of] the conditioning input is approximately...”. The arguments against these claims are similar to those of claims 25, 39, and 53. In that,

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the primary and secondary burn values are calculated so the average value of a pixel during the primary and secondary burn periods is equal to one-half the bit depth of the pixel. These values will have no effect on the value of the pixel during the time following the primary and secondary periods. The specific teachings of this claim is new matter based on there is no discussion within the specification about the primary and secondary burn values affecting the average value of a pixel after the primary and secondary periods.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 18, 19, 21, 27-29, 35, 41-43, 49, 50, and 55-57 are rejected under 35 U.S.C. 102(b) as being anticipated by Goldberg (USPN: 4670784).

Regarding claim 18, Goldberg teaches monitoring the image history of pixels in a display during an active mode (col. 5, lines 9-24). Further, Goldberg identifies pixels that are burned to a greater degree than other pixels (Fig. 1, area Y is an area of pixels that have been more active) and then determines pixels that have been burned at a lesser degree than identified pixels (Fig. 1, areas X are areas of pixels that are less active) (col. 1, lines 37-57).

Regarding claim 19, Goldberg discloses driving the display in a reverse burn mode to reduce the difference between each of more active and less active pixels (col. 5, line 25 – col. 6, line 3). Goldberg calls the reverse burn method 'post aging' of the display.

Regarding claims 21, 35, and 49, these claims are a method of operation, associated device, and associated computer program to perform the method. As such, these claims are considered together. Goldberg discloses determining a value for pixels within a first area (col. 5, lines 9-24). Goldberg also discloses determining a secondary value for other pixels within a second area (col. 5, lines 25-46). Within the method of Goldberg the primary value of the pixels in the X areas is assumed to be zero. This is because these pixels are not active during the normal display of visual areas (col. 1, lines 37-57). Further, Goldberg chooses the secondary value of the first group of active pixels to be zero, this is inherent because the post age signal is only used on the X areas of figure 1 (col. 5, lines 25-30). Finally, Goldberg uses the calculated signal to be applied to the pixels in a secondary time frame to reduce the difference of age and light output between pixels within the first area and the second area (col. 5, line 25 – col. 6, line 3).

Regarding claims 27-29, 41-43, and 55-57, Goldberg provides measuring the operating current of the active pixels during the entire time the display is operational and saving the value to be used when aging the unused pixels of the display at a later time. Saving the information would require a predetermined frequency of measuring the activity of the pixels within the display (col. 5, lines 9-25).

Regarding claim 50, Goldberg discloses driving circuitry to drive the pixels based on video input (Fig. 3, elements 10, 22, and 18; the receiver of the display device).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 22, 23, 36, 37, and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goldberg.

Regarding claims 22, 23, 36, 37, and 51, Goldberg does not disclose a specific duration of the post age period, but rather selects the duration based on the amount of charge to be applied to the previously inactive pixels (col. 5, lines 25-24). At the time of invention it would have been a matter of design choice for one skilled in the art to select a time period for applying the post-aging signal to be equal or different than the duration of the primary use time of the display. It would have been obvious to one skilled in the art that depending on voltage, resistance and other characteristics of the display and circuitry the time needed to apply a known amount of current could be altered to any desired amount of time.

***Response to Arguments***

6. Applicant's arguments, see pages 18-19, filed 11/28/2006, with respect to the rejection(s) of claim(s) 1-19 under 35 USC 102(e) and 35 USC 103(a) have been fully considered and are persuasive in light of the information provided to show conception of the invention prior to the effective date of the previously applied reference. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Goldberg reference, which was cited in the previous Office Action as being pertinent prior art.

***Allowable Subject Matter***

7. Claims 1-17 are allowed.

8. Claims 24, 30-34, 38, 44-48, 52, and 58-62 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The present invention is directed to a method of operating a display device to reduce burn-in of images by uneven aging of pixels when the display is operated.

Independent claims 1 and 16 identify the uniquely distinct features "determining a primary burn value for each of the pixels" and identifying a pixel that has been operated more than the other pixels in the display and identifying pixels that have been operated less than the other pixels within the display. The closest prior art, Goldberg, Grimes et al. (USPgbPub: 2003/0142212) and Shigeta (USPgbPub: 2002/0030674) disclose methods of reducing burn-in differences between pixels using average calculations of



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the pixels in the display, either singularly or in combination, fail to anticipate or render the above underlined limitations obvious.

Independent claim 14 identifies the uniquely distinct features “determining a primary burn value for each of the pixels during the active burn mode”, “determining a secondary burn value for each of the pixels”. The closest prior art, Goldberg, Grimes et al. (USPqPub: 2003/0142212) and Shigeta (USPqPub: 2002/0030674) disclose methods of reducing burn-in differences between pixels using average calculations of the pixels in the display, either singularly or in combination, fail to anticipate or render the above underlined limitations obvious.

Dependent claims 24, 38, and 52 identify the uniquely distinct features “determining a third primary value for a third pixel”, “determining that the third primary value for the third pixel is lower than each of the first primary value and the secondary primary value of the second pixel”, and selecting secondary values based on the difference between the third primary value and the first primary value, or the third primary value and the second primary value. The closest prior art, Goldberg, Grimes et al. (USPqPub: 2003/0142212) and Shigeta (USPqPub: 2002/0030674) disclose methods of reducing burn-in differences between pixels using average calculations of the pixels in the display, either singularly or in combination, fail to anticipate or render the above underlined limitations obvious.

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9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven E. Holton whose telephone number is (571) 272-7903. The examiner can normally be reached on M-F 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Steven E. Holton  
Division 2629  
February 16, 2007

AMR A. AWAD  
SUPERVISORY PATENT EXAMINER

